DSEI LE TacCIS Overview

Brigadier Niall Stokoe OBE

Head Information Services and

LE TacCIS Programme Director

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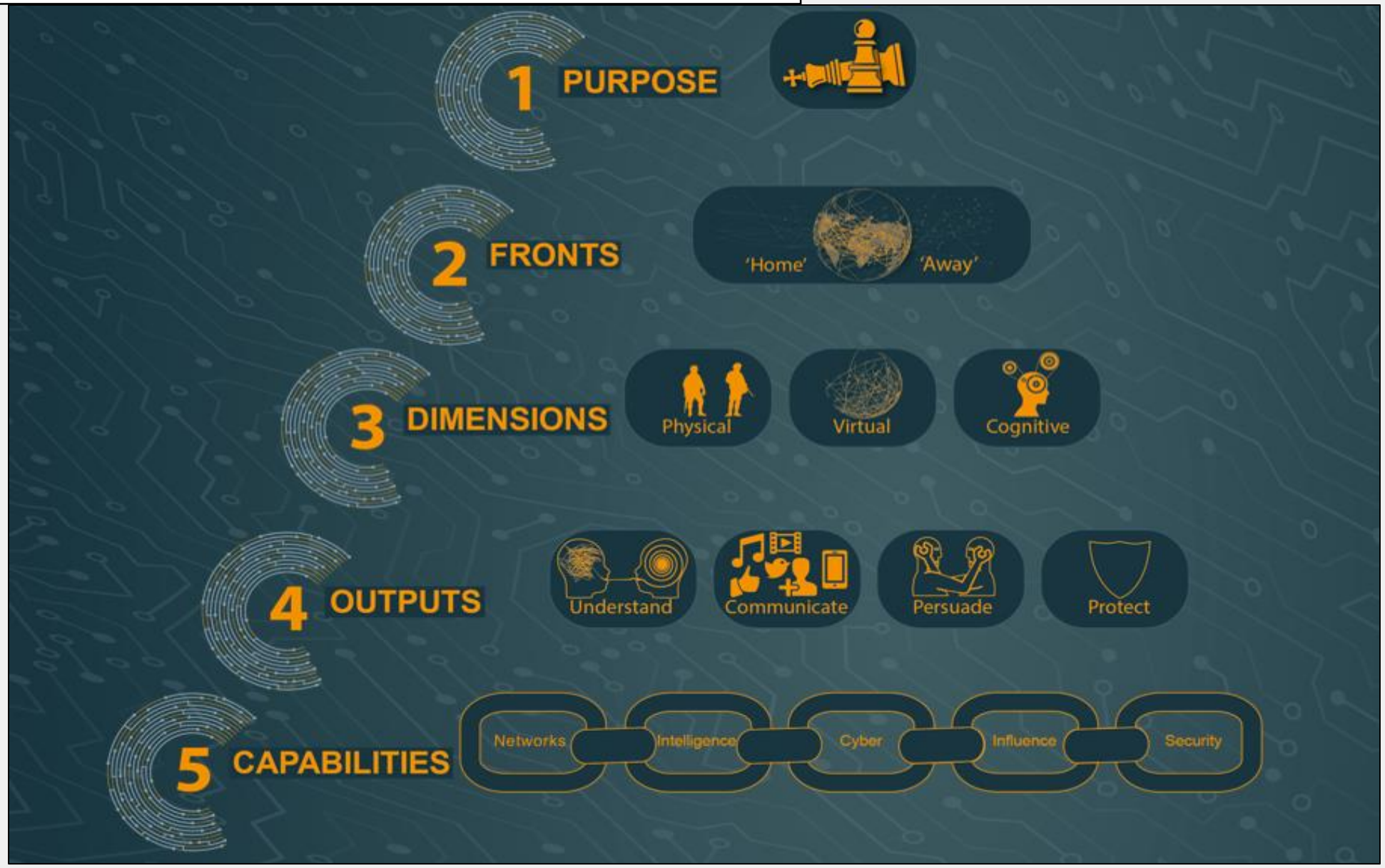
Information Manoeuvre – Setting The Context



~~MORPHEUS~~ Values

LE TacCIS

DSEI LE TacCIS Overview

What will LE TacCIS Deliver?

"Military commanders in the Land Environment enabled by agile Information Communication Services, making informed and timely decisions".

LE TacCIS Vision

- Reduced cognitive and physical burden
- Optimal Information availability
- Network agility
- Enabling logistic efficiency
- Increased survivability

End Benefits

- Improved Operational Effectiveness
- Efficient, timely, evergreen capability delivery

Capability Blocks

BCIP 5.6

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TRINITY

DSA

NIOBE

Values

- Focus on our Forces
- Be One Team
- Encourage improved Ways of Working

These Benefits built on this capability and supported by these behaviours

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Programme Overview – Next 12 Months

TRINITY

- **Acquisition Strategy**
- **Assessment Phase**

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- **System Integration -** Contract award scheduled for Q3 21; Competition Q3 19 to Q1 21
- **MMR -** Future Bearers Assessment Sep 19 to Jul 20

BCIP 5.6

- **IOC Nov 19 and FOC Jul 20**
- **DSC on contract**

DSA

- **Experimentation**. Increasing up to Battlegroup level
- **Initial Business Case Submission.** Planned for Mar 20

NIOBE

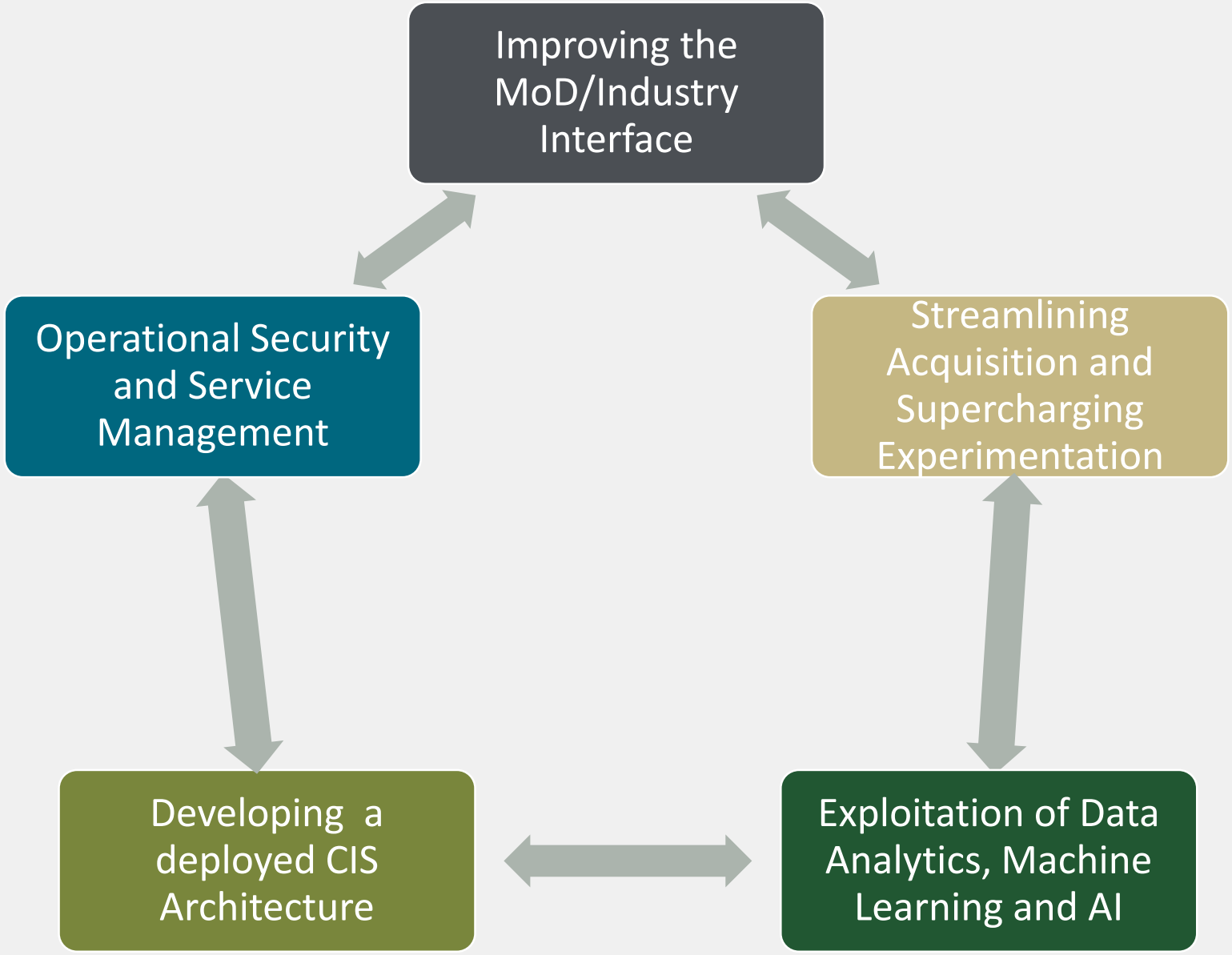
- **6 Experimentation platforms**
- **Concept and Assessment Phases.** Target IOC 2023

LE TacCIS Top 5 Risks

Security	• Security Policy does not support LE TacCIS Assumptions
Integration	• LE TacCIS not efficiently or effectively integrated into platforms
Architecture	• Lack of UK Architectural Coherence
ECD	• Evolutionary Capability Delivery fails to realise the benefits of increased timeliness of upgrades
Interoperability	• Interoperability not delivered effectively through LE TacCIS

DSEI LE TacCIS Overview

Key Areas of Interest (…and where Industry can help)



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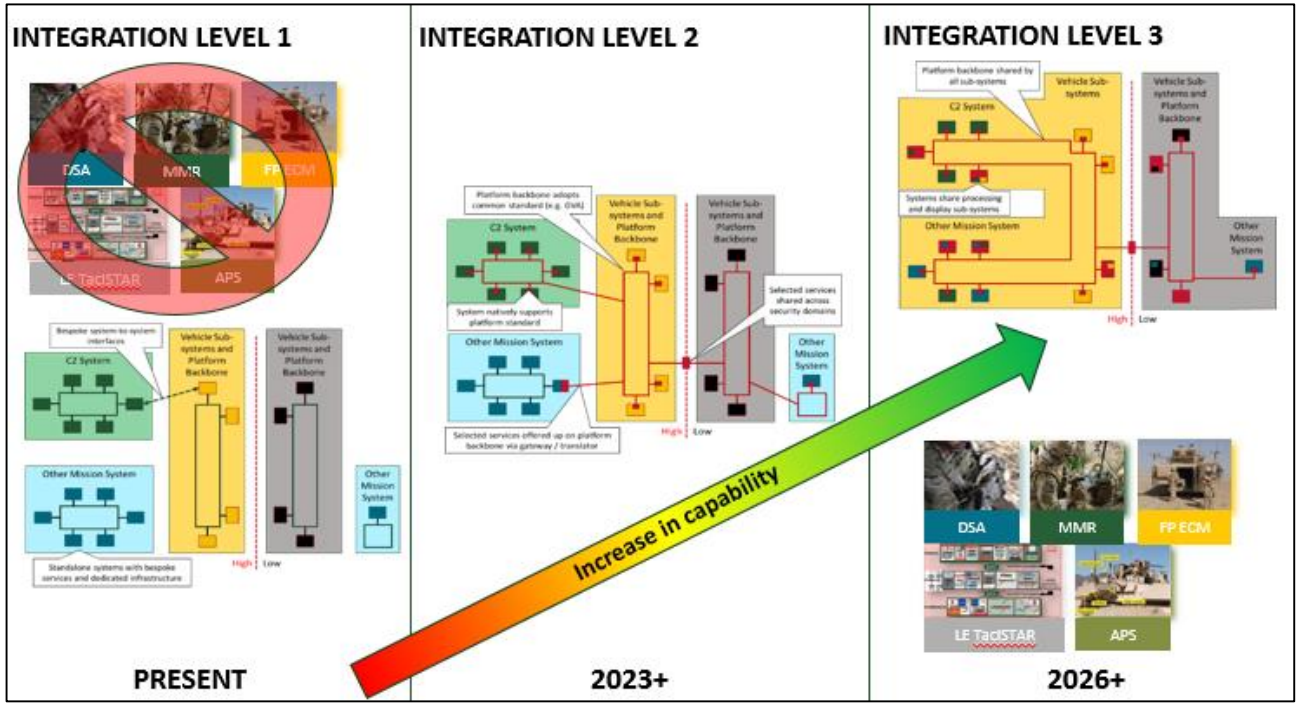
Architectural Alignment Investigation (AAI)

The Land Integration Challenge

- **We will expect require platforms and mission systems of all types to work coherently together to:**
  - Share useful operational information at scale and pace
  - Pool infrastructure and services within each vehicle, where doing so can reduce overall SWAP
- **But**
  - We procure standalone systems (platforms), built to their own, proprietary, standards
  - Platforms and MSs are expensive to modify in service.
  - Aren't future-proof; systems can collaborate only in ways foreseen and specified at design time



IL1 - Limited Integration - Systems use their set of services, interfaces, wiring and hardware with limited attempt to take a common or integrated approach with other systems.

IL2 - Information Integration - Systems use defined standards for their internal services and translate to open interfaces to other systems using recognised standards to allow information to flow between systems.

IL3 - Shared Infrastructure - Systems use an open implementation of software (albeit still on a system-by-system basis) which allows functions from one system to be hosted on hardware from another.

What else? – C4I IRE

In concert with the Dstl IS research pgm and Fd Army S&T, primary Army C4I concern lies with:

- Increasing C2 survivability & resilience
- Increasing CIS flexibility in the force
- Enabling evergreen capability

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~~MORPHEUS~~ Values

LE TacCIS

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LE TacCIS – General Dynamics

EvO Overview

User Experience (UX)

MORPHEUS JPO

Evolve to Open (EvO) Aims

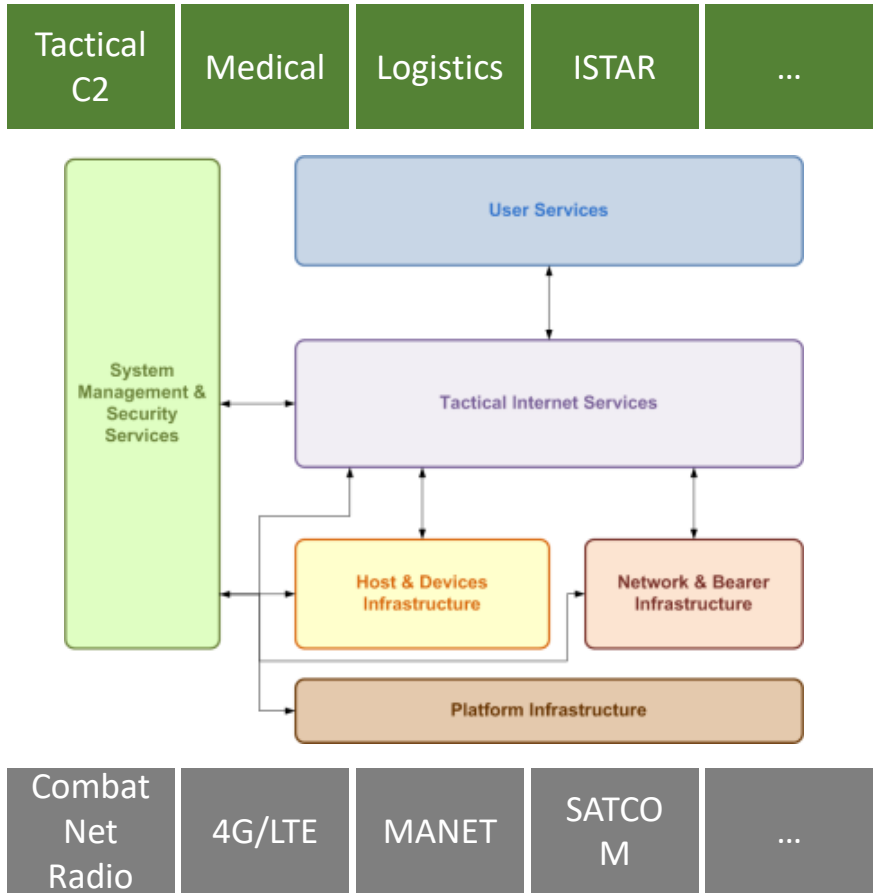
- Deliver a delaminated, vendor independent, open architecture which is owned by Defence and controlled through the UK Tactical Architecture Forum (TAF)

- Deliver the first instantiation of the MORPHEUS open architecture using Agile technologies and business models

- Enable the Authority's transition to be a Quasi-Prime and Design Authority (DA)

EVO TACTICAL CORE INFRASTRUCTURE

- Software and Hardware modules implementing 106 Architectural Building Blocks of the MORPHEUS Architecture



Customer supplied applications (legacy and competitively sourced)

Software modules that provides tactical internet services

Hardware modules that provide network, computing, storage, displays, audio user services

Software modules for system management and planning at the platform and system level

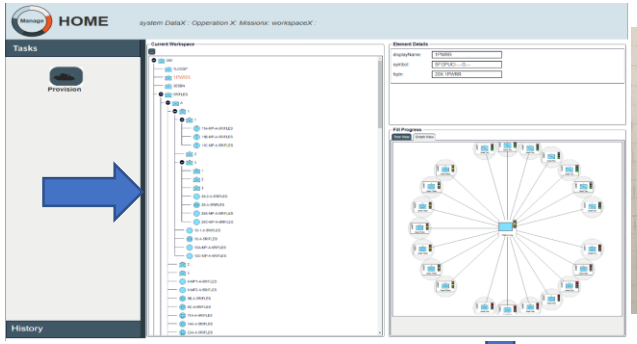
Customer supplied radios (legacy and competitively sourced)

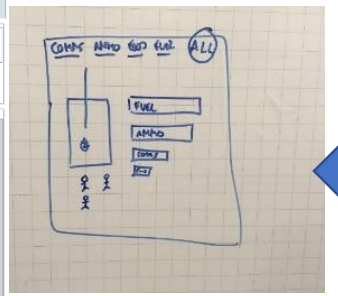
USER EXPERIENCE

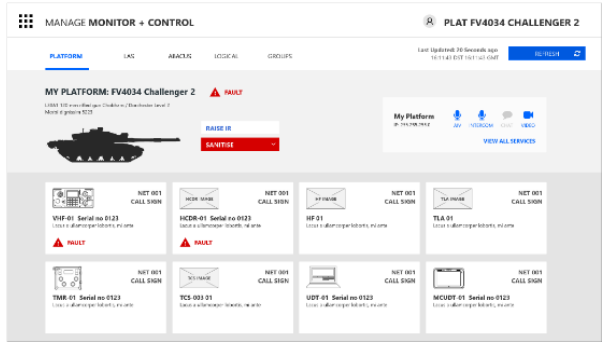
For every type of user to be passionate about using LE TacCIS products because they enable them to do their job more effectively, efficiently and with speed, precision and confidence.

WHY USER EXPERIENCE (UX) IS IMPORTANT

Building A Shared Understanding Through Collaboration







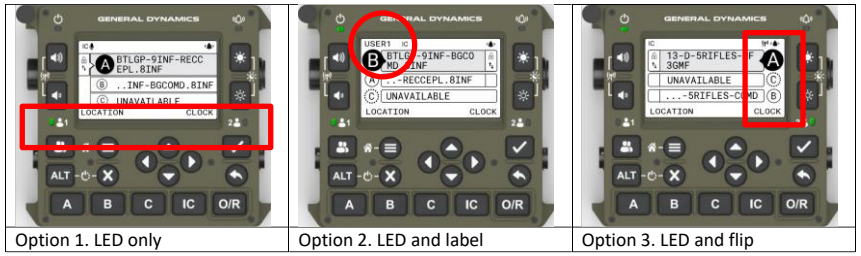
General Dynamics

- Reduce development costs and complexity by iterating designs early
- Have greater confidence in User Acceptance
- Get to deliver great products

The User

- Gets products that meets need
- Has reduced training (time & cost) and subsequent skill fade
- Has a reduced cognitive burden
- Trusts the system

WHY USER EXPERIENCE EXAMPLE – TACTICAL CREW STATION



Option 1. LED only | Option 2. LED and label | Option 3. LED and flip

Current Tactical Crew Station Design

Scoring above 80 on System Usability Scale, evidenced by BUE7 that included inexperienced Users (Wales OTC) using it during the research session. The BUCD is 11 x 40 min lessons for AFV crew and is immediately forgotten.

FROM CONTRACTING AUTHORITY TO QUASI-PRIME

THE MORPHEUS JOINT PROJECT ORGANISATION (JPO)

GDMS are working with the MoD and other stakeholders to create a **multi-vendor JPO in Bristol**

- Enables MoD to become Masters of their Own Destiny (deliver Programs and manage changes to the baseline)

The JPO is **an integrated programme management and engineering organisation, delivering MORPHEUS**

- Knowledge Transfer is ongoing to ensure MoD staff have correct training and expertise in a multi-vendor environment

Key features of the JPO are:

- A collaborative working environment, with compartmented multi-vendor access within a secure accredited portal
- An independent SDA capability, in particular to review future baseline uplifts and manage impacts
- An independently verified, P3M3 program management organisation
- Regular Multi-Vendor Governance Reviews (Monthly Mgt Review, Change Reviews, Scheduled and Risk Reviews)

FROM CONTRACTING AUTHORITY TO QUASI-PRIME

WHAT WE HAVE LEARNED SO FAR

Successes

- Early behaviour workshops to create shared values and ways of working have enabled faster programmatic decisions
- Joint development model using Agile has resulted in better system / product design decisions
- Unprecedented levels of end-user engagement to de-risk Army acceptance

Opportunities

- Integration of new partners to a common delivery process
- Agile trading and change management within fixed PCT contract
- Adoption of JPO processes and ways of working across wider BATCIS/ISS teams

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How are we supporting the Front Line Commands deliver the LE TacCIS benefits?

The challenges/lessons learnt from working together in a JPO with no Prime.

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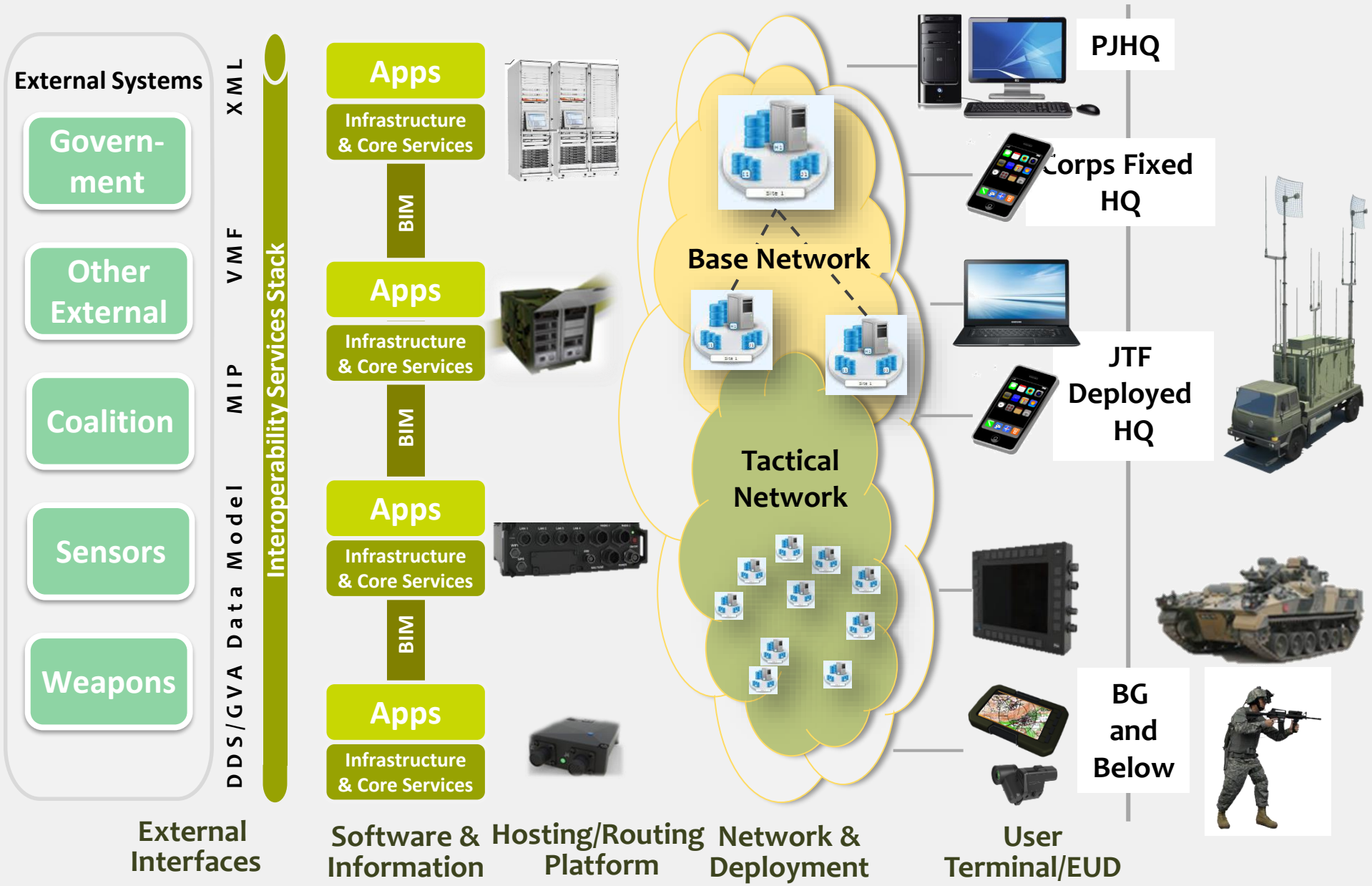
BMS ARCHITECTURE



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BMA PROGRAMME

BMA Applications

HQ | Mounted | Dismounted

BMA TIF Services

- GIS
- Sym
- Taskord

TIF Services

- IMSI
- AAI
- DMI
- DSI
- FMAI
- LSI
- MMSI
- NFI
- LUSS

Adaptors and Engines

- Sensor Adaptor
- Sim Adaptor
- MapX
- Geo Machine
- INTROPRBL Adaptor
- Distribution
- Tactical Distribution
- TIF Adaptor

Business Services

ISR	CFF	OPS	BFT
AAR	Fire Planning	Tracks	COP
...	Fire Control	Chat	Planning

User Interface/Browser

Core Framework Services

Front End

REST | Real Time Subscription | Resources

Back End

Queues | PUB/SUB | Archive

Data Transmission | Reactive Views

Storage

Active | ArchiveIn | Memory

Standard Services

Video Streaming | GIS

Monitoring | Logs

Authentication

Orchestration

Storage

Maps | Media | Logs | Metrics

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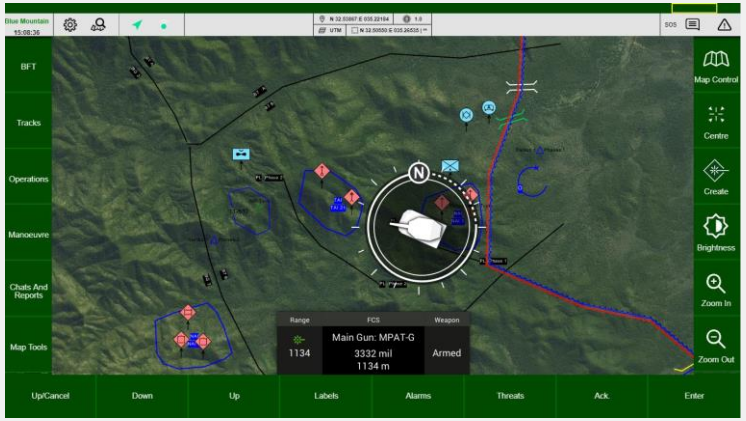
THE LE TACCIS BENEFITS

- Reduced cognitive and physical burden
- Optimal Information availability
- Network agility
- Enabling logistic efficiency
- Increased survivability

End Benefits

- Improved Operational Effectiveness
- Efficient, timely, evergreen capability delivery



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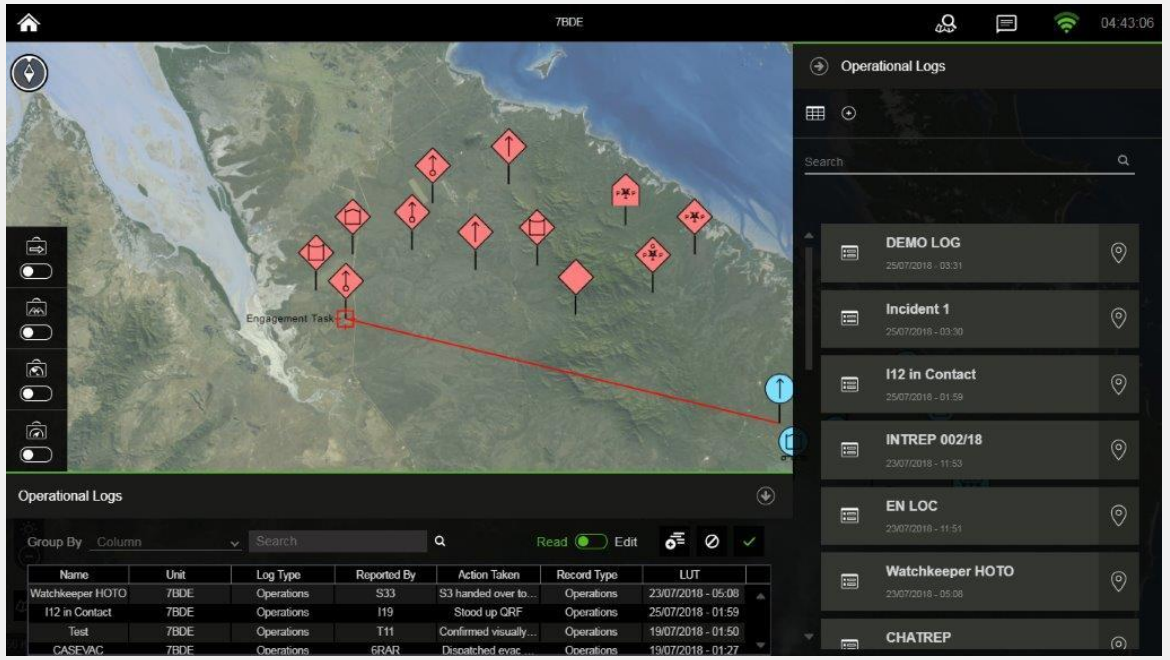
REDUCED COGNITIVE BURDEN

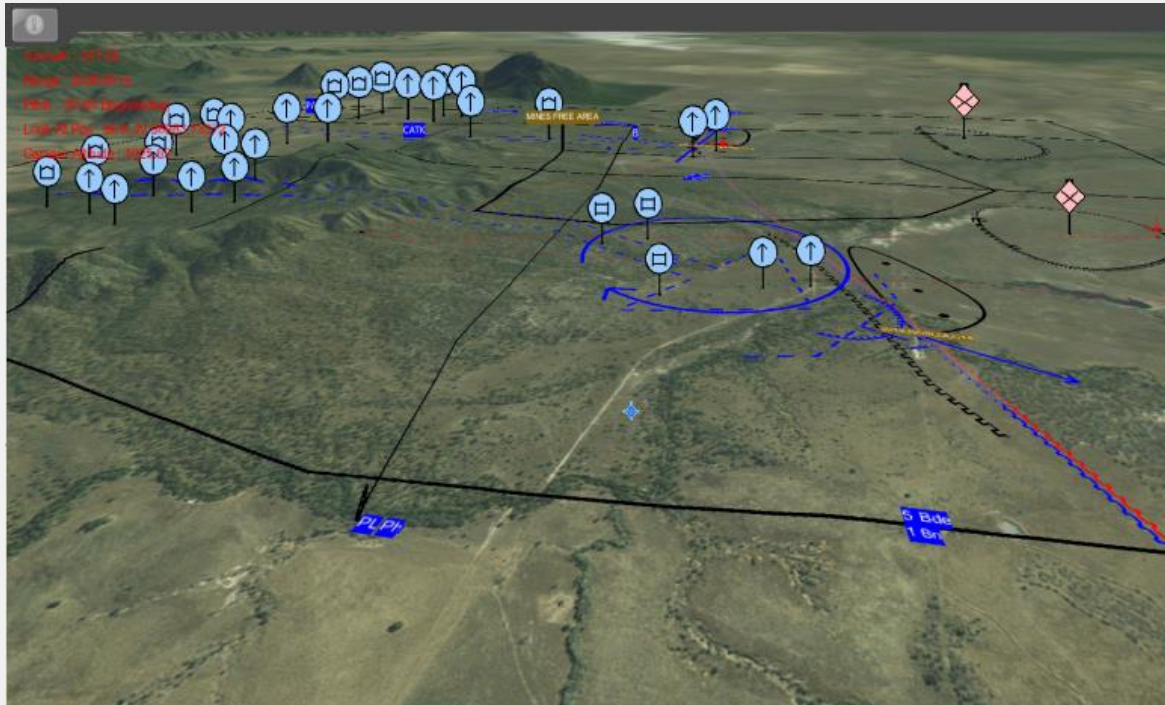
- BMA GUI just completed significant HFI Investment from a previous programme

- BMA features development/adjustment being completed through a HFI programme
  - SME input/feedback
  - Moving to collective feedback/CP Activities
    - CUBS
    - Battle Rhythm Management
    - Synch Matrix

- Reduced Staffing/More With Less

- Digital Transformation vs Digitisation of Processes





INFORMATION AVAILABILITY/ INCREASED OP TEMPO

Planning

- Enter once/use many times
- Pre-population of fields for later phases of planning – 1 up/2 up, NAIs, TAIs,
- Simple but multiple input/viewing mechanisms

Decision

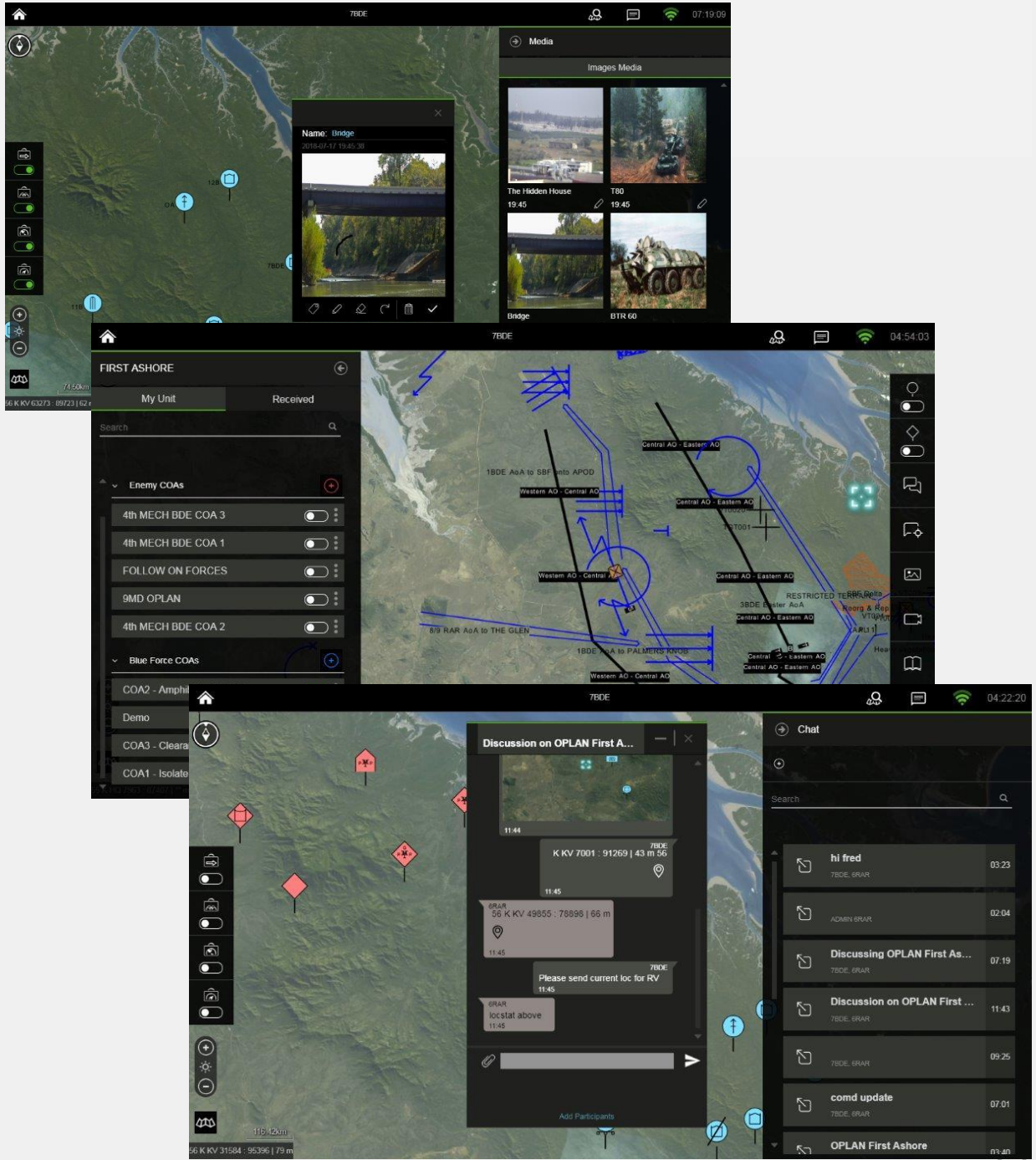
- Rich COA Dev/Analysis and Wargaming tools
- Briefing Tools and orders populated as outputs
- 3D fly throughs for rehearsals

Execution

- Live feeds, 3D views (performance envelopes), Live Synch Matrix for battle tracking, DP preparations and transition to branch plans
- Chat
- Prepopulates CUBs/Prayers Briefings (all cells)

Review/Archive/Lessons Learn

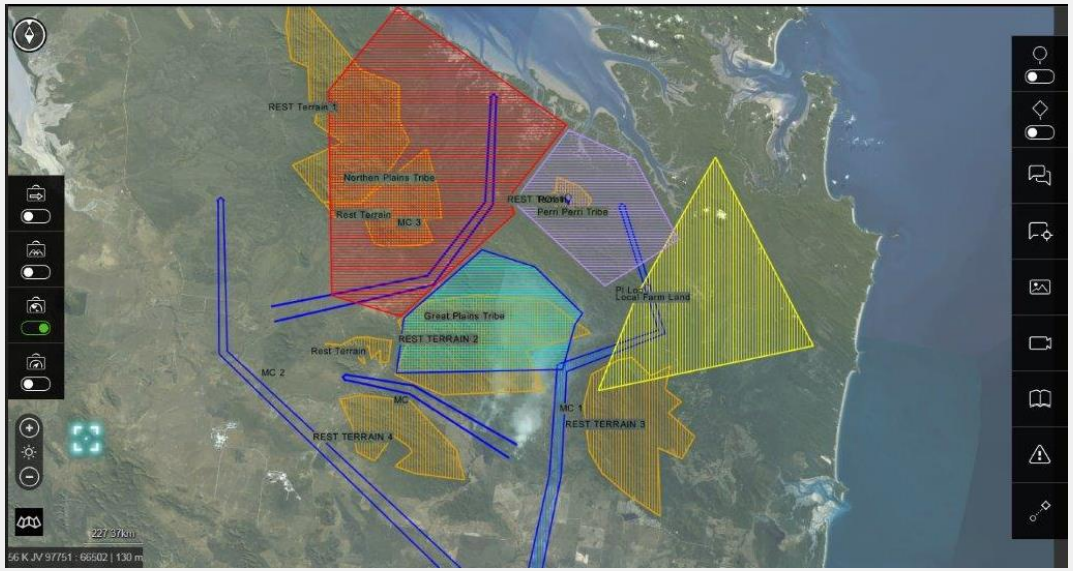
- Record and playback
  - 2D/3D
  - Messages/Movement/Orders

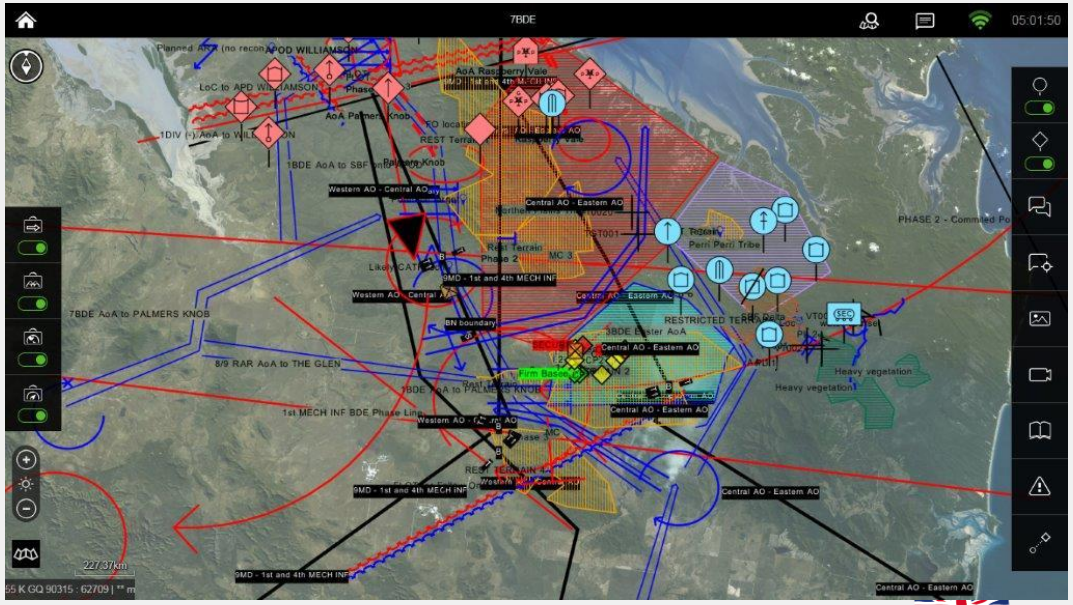


INCREASED NETWORK/ OPERATIONAL AGILITY

- BMA is designed as an end-user configurable, modular tool set suitable for operational/tactical HQs across the staff functions/BISAs and mounted/ dismounted users

- Capable of development and management of multiple plans from Corps to Sub-Unit level when conducting Multi Domain operations in asymmetric/near peer conflict
- Designed to support
  - Dynamic reallocation of callsigns
  - Major orbat changes in-between phases





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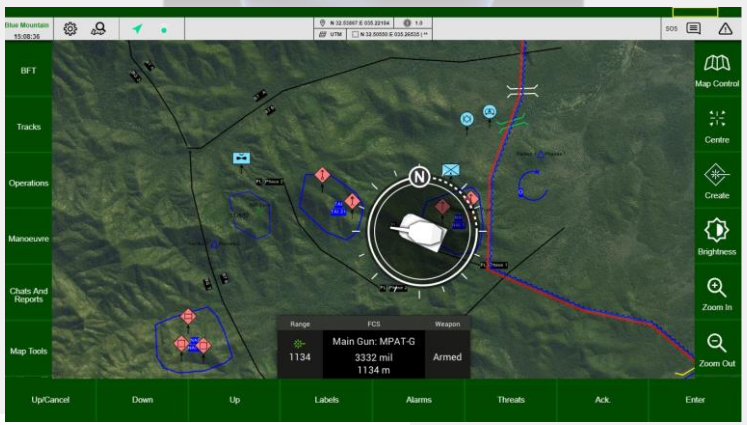
ENABLING LOGISTIC EFFICIENCY

- BMA has functionality which supports automated logistic returns from units/callsigns
  - 60% reduction in logistics staff effort at HQs
- HUMS Infrastructure – network/platform
- Training Efficiencies – LFE
- Evergreening and ‘Evercurrent’



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INCREASED SURVIVABILITY

- Generally nested in all of previous slides of LETACCIS portfolio

- An integrated and assured Land Combat System
  - Superior Decision Cycles - parallel/collaborative planning
  - Increased Lethality - collaborative engagement using kinetic/non-kinetic effectors
  - Increased Physical Survivability
    - Minimum and Dispersed Footprint
    - Logical Network
    - Protected and Mobile

- Identify and exploit synergies across IM Portfolio

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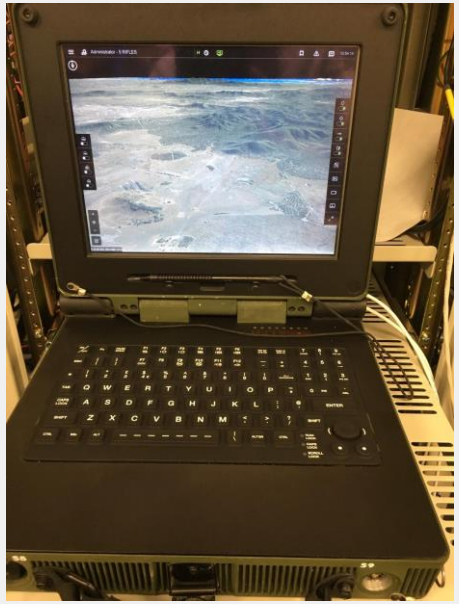
WORKING TOGETHER IN A JPO WITH NO PRIME

Dynamic and Challenging environment



EVO PI Cadence/Infrastructure under development/Full Agile

- Significant Engineering Interaction
- Dependency Management
- Full Agile/SAFE vs Scrum/Waterfall relative merits
- IP considerations
- Collaboratively working towards alignment and adjusted programmatic approach
- Relationships and leadership investment

Collaboration isn't enough

- End Goals Intertwined – delivery approach to reflect this

It's a Journey

- Not only meet the operational benefits, but jointly develop new ones

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Questions?

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